

Pest Alert

FOREST SERVICE—U.S. DEPARTMENT OF AGRICULTURE
IN COOPERATION WITH YOUR STATE AGENCY

Protection Report R8-PR 19 September 1990

Needle and Shoot Blight in Virginia Pine Christmas Tree Plantations

In the spring of 1989, a needle and shoot blight was observed on Virginia pine in Christmas tree plantations. Affected trees were reported in Louisiana, Mississippi, Alabama, Georgia, and Florida (figure 1). About 15 percent of the trees in plantations along the Gulf Coasts of Alabama and Mississippi were killed or severely damaged. A similar problem has also been observed on sand pine Christmas trees in Florida (Personal communication, Dr. E. Barnard, Florida Division of Forestry, Gainesville).

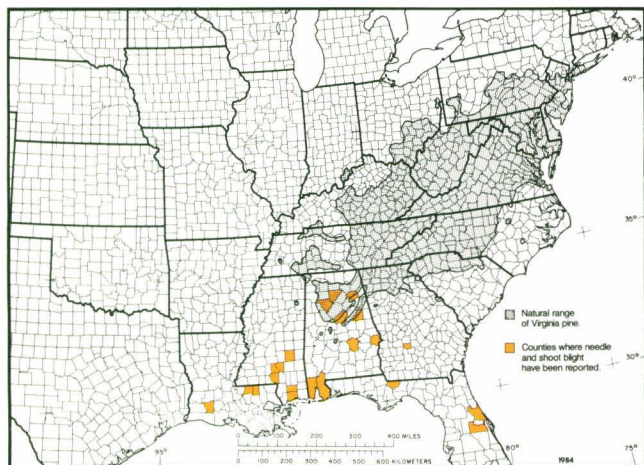


Figure 1.—Natural range of Virginia pine and counties where the needle and shoot blight problem has been reported in Christmas tree plantations.

Injury occurred as needles expanded. It was common to find dead needles only millimeters in length. Typical needle symptoms included death of tissues at the bases of maturing needles, while needle tips remained green (figure 2), and twisting and reddish-brown coloration of killed needle tissues.



Figure 2.—Typical needle symptoms.

Early symptoms on shoots included a pitch-encrusted, purplish lesion (figure 3). Severity of the shoot blight phase seemed to decrease with shoot



Figure 3.—Pitch-encrusted, purplish shoot lesion.

maturity. Elongating shoots were quickly killed (figure 4). In contrast, if disease developed later, only the tips of shoots died. Although some 1- or 2-year-old trees were

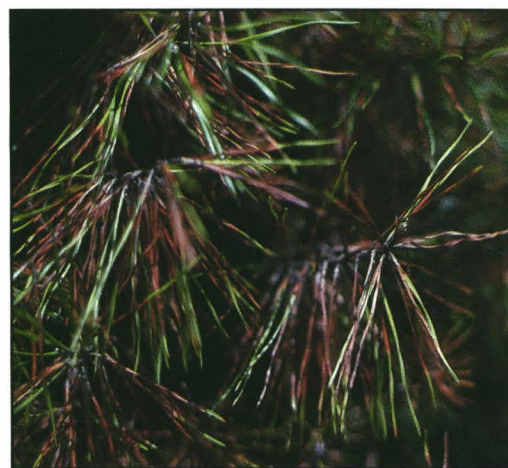


Figure 4.—Shoot blight phase.

Report damage to:

affected, the most severe damage was observed on 3- to 5-year-old trees (figure 5).



Figure 5.—Severely damaged Virginia pine Christmas tree.

The cause of needle and shoot blight has not been determined. Cultural practices in Christmas tree production and planting beyond its natural range may stress Virginia pine. Multiple growth-flushes associated with repeated shearing to improve tree shape and density may expose potentially susceptible tissues to the causal agent throughout the growing season. Atmospheric pollution, nutrient imbalances, and above-average rainfall may be involved in the disease etiology.

At present, we have no recommendations for control of needle and shoot blight. Fungicides failed to limit

disease build-up and spread. Colonization of living needles by fungi, including species of *Curvularia*, *Lophodermium*, *Pestalotiopsis*, and *Rhizosphaera*, was generally restricted to epidermal cells. If such fungi were primary causal agents, routine spray programs should have been more effective. Historically, many of these fungi have been associated with weakened or declining trees.

Many trees showing severe symptoms of needle and shoot blight in 1989 were removed and destroyed. Sanitation programs seemed to reduce incidence, especially those programs that were begun very early in the season.

Resistance to at least some component of this complex disease was observed in populations of Virginia pine. Careful selection and breeding has the potential to provide long-term benefits not only for disease management, but also in tree quality.

Critical research needs include: 1) causal agent identification, 2) studies on the epidemiology and etiology of the disorder, 3) background information on cultural requirements for Virginia pine in Christmas tree production, 4) evaluation of treatments, schedules, and application methods for fungicides, 5) a comprehensive breeding program for disease resistance.

Because needle and shoot blight on Virginia pine in Christmas tree plantations is a new problem with potential for causing severe losses, the authors of this Pest Alert would appreciate additional reports on its occurrence. They can be reached at the addresses and telephone numbers shown below.

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